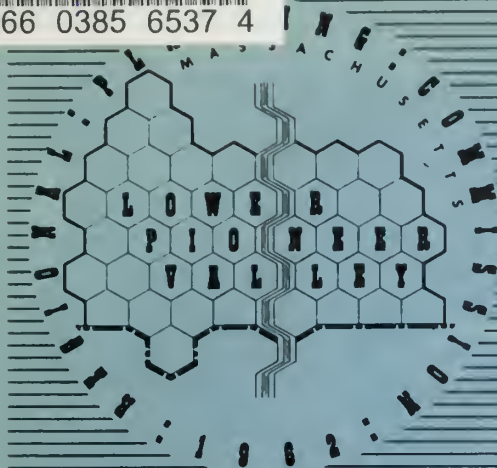


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# LAND USE AND DEVELOPMENT 1970

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LOWER PIONEER VALLEY REGIONAL  
PLANNING COMMISSION 1973



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LAND USE AND DEVELOPMENT, 1970

March 1973

Lower Pioneer Valley Regional Planning Commission  
1499 Memorial Avenue  
West Springfield, Massachusetts 01089

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through a comprehensive planning grant from the  
Department of Housing and Urban Development.





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## I. METHOD OF LAND USE UPDATING

### Sources of Data

The basic report on land use in the Lower Pioneer Valley is the Springfield Urbanized Area Comprehensive Transportation Study (SUACTS), prepared by Wilbur Smith and Associates. This study included a detailed land use survey, carried out in 1965. The survey was based on aerial photo mosaic maps at a scale of 1"=400', prepared by Moore Mapping Service. Land uses appearing on these photomaps were identified as belonging to one of 67 categories, and the area occupied by each was measured. Tabulations were then made of each category for summary in the SUACTS report. The study covered the 30 cities and towns which comprised the Lower Pioneer Valley Regional Planning District at that time.

Utilizing data from the SUACTS study, the Lower Pioneer Valley Regional Planning Commission (LPVRPC) prepared reports on land use and housing in 1965 for its land use planning. These reports covered only the 30 town area. New land use surveys were done in 1969 for the 13 towns which were subsequently added to the planning district. Land use maps were prepared for the two areas.

Data for updating these land use studies included topographic quadrangles, published by the U.S. Geological Survey, covering the entire region, many of them prepared or revised by photogrammetric means from aerial photos. Some quadrangles were also available showing recent changes, ascertained from

aerial photos taken in 1970, as overprints on older maps. In addition, aerial photos of the region taken in October of 1970 were available from the U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service. These were at a scale of approximately 1:40,000. Later photography, taken in 1972, was not yet available to the Commission, so could not be used in the updating work.

The Commission completed a new housing inventory in 1972, based largely on data from the 1970 U.S. census. Other Commission reports completed since 1965 on community facilities, utilities, economic development, and other aspects of the region furnished data for checking on the land use updating.

Besides the Commission's studies, numerous municipalities in the region conducted land use and planning studies since 1965. These were consulted for data useful to the updating. In addition, the Soil Conservation Service of the U.S. Department of Agriculture carried out numerous natural resource inventories of municipalities in the region. Finally, street guides, newspaper reports, and public works project applications furnished additional data for input to the updating work. Where these sources proved insufficient for the updating, field checks were made. Consultation was also made with municipal and areawide officials and agencies, as well as other knowledgeable people.

#### Data Recording

A detailed field survey of land use in the region was

impossible, given the limited time and funding for the project, so a complete and detailed inventory of land use could not be made. A compromise method was therefore needed which would furnish sufficient information for a review of development as compared to the original land use surveys of 1965 and 1969. For the task of updating these land use surveys, it was important, then, to devise an economical and speedy method of gathering and measuring land use data and making an analysis of land use changes which would have significant meaning to the planning and plan implementation activities of the Commission.

A map was prepared showing essentially all land use changes between the original surveys and 1970. Basic to this was interpretation of the aerial photos taken in October of 1970. Land uses on the 1965 and 1969 land use maps were identified as residential or non-residential, and this information was transferred to overlays on a regional base map at the scale of 1:72,000 or one inch equals six thousand feet. Additional land uses appearing on the aerial photos were then identified as either residential or non-residential, and this information was also prepared on overlays to the regional base. The prior mentioned reports and studies, as well as the consultations with knowledgeable persons, were used as a check on the photo interpretation and to clarify classifications.

The map, Regional Development 1965-1970, presents the results of these labors. On it are portrayed existing

residential and non-residential land uses as of 1965 in the 30 town area and as of 1969 in the 13 town area. Also on the map is subsequent development as of 1970, as either residential or non-residential. This map, therefore, shows regional land use at the time of the original surveys and development that has occurred since then. Altogether, the map also shows the status of development in the region in 1970, which can be compared roughly to data from the 1970 U.S. census.

Land use was categorized as residential or non-residential so as to be comparable with the land use maps and tabulations of 1965 and 1969. The 1965 map of the 30 town area portrayed residential land use in four categories, while the 1969 map of the 13 town area used only one category for residential land use. Cartographic considerations, as well as the limited scope of the project, entered into the decision to group all non-residential uses. The non-residential category did not include undeveloped land, open space and outdoor recreation areas, agricultural areas, or water bodies and water related areas. The intent was to focus on structurally developed land.

The scale of the map and the photos used in the updating of land use prevented a detailed and precise measurement of the areas occupied by the various land uses. Larger areas could be planimetered. Small areas, especially scattered single family residential lots, could not be precisely measured. Where necessary, these were counted and a factor



applied, based on previous average area per single family housing unit in the municipality or on minimum areas permitted by local zoning regulations. The result, of course, must be considered an estimate of land use areas. Credibility of the estimate was checked against data from the 1970 U.S. census and dwelling permit data gathered and analyzed in the Commission's report, Housing Inventory 1972.



## II. ANALYSIS OF TRENDS

### Non-Residential

Non-residential land use is shown on the map, Regional Development 1965-1970, as solid colors. The solid blue indicates non-residential land use in 1965 in the 30 town area and in 1969 in the 13 town area. The solid red indicates non-residential land use and development occurring between these dates and October of 1970.

Table 1 presents acreages of non-residential land use at the time of the original surveys and as of 1970. From this table it can be seen that the major concentration of non-residential land use remains in the central urban core of Springfield, Chicopee, and Holyoke (see also Map 1). At the same time, the major development increases also occurred in these central cities and in their surrounding suburbs and satellite cities. In most cases non-residential development tended to occur in or near those municipalities where non-residential land use was already well established.

The larger areas of new non-residential land use were the locations of school facilities. New schools were constructed in Longmeadow, East Longmeadow, Blandford, Ware, Wilbraham, Ludlow, Chicopee, South Hadley, Amherst, and Northampton. A regional high school was erected in Westhampton. Amherst was most notable for construction related to the University of Massachusetts. A completely new facility, Hampshire College, which is still being expanded, was also

# Sub Areas



### LEGEND

CENTRAL URBAN CORE

SUBURBAN \* RING

RURAL FRINGE

\* The Connecticut River divides East Suburban and West Suburban

PLANNING DISTRICT BOUNDARY

CITY AND TOWN BOUNDARY

COUNTY BOUNDARY

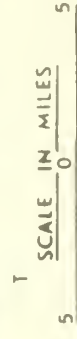
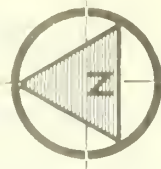
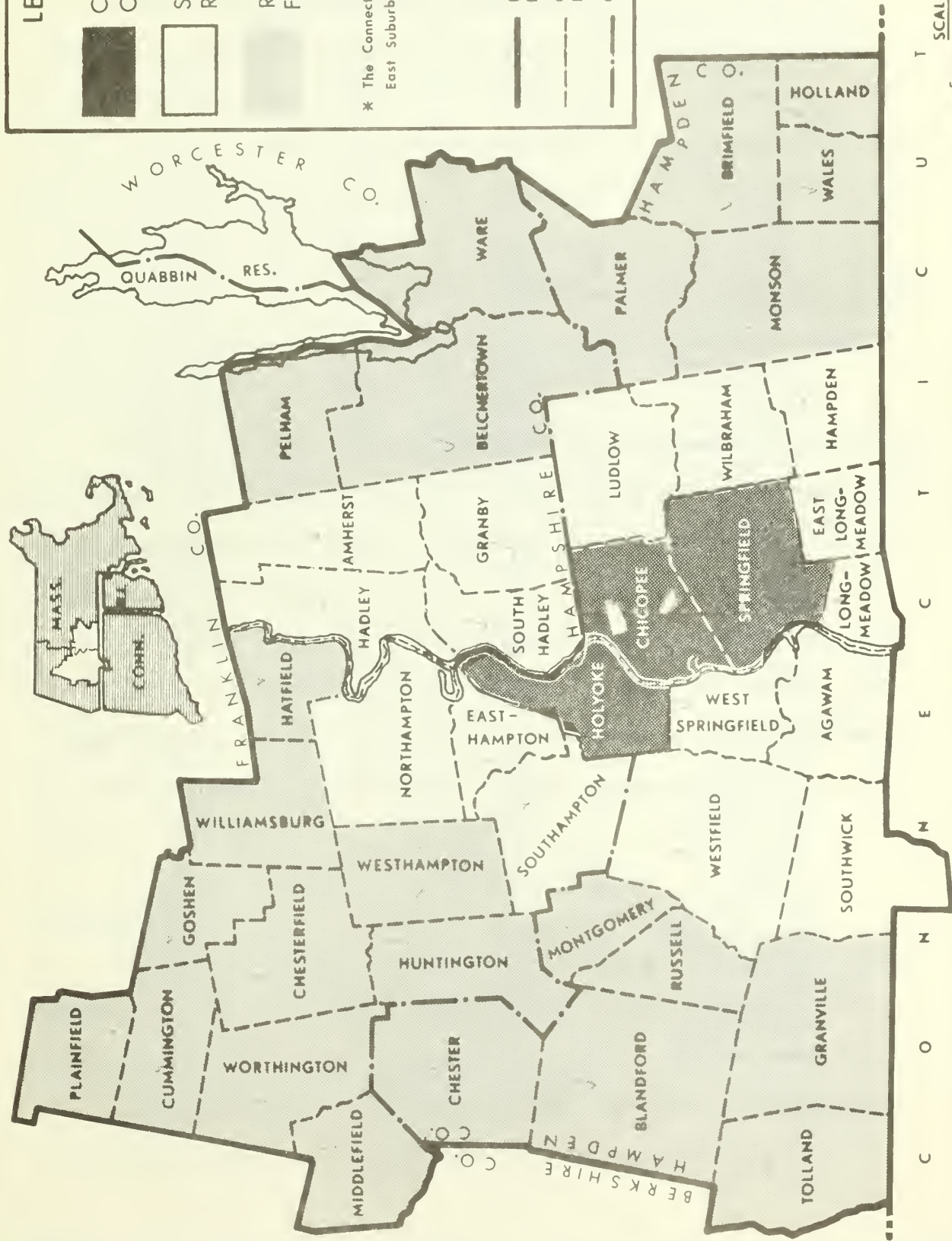


TABLE 1  
NON-RESIDENTIAL DEVELOPMENT, 1968-1970  
(in acres)

	Old Non-Residential	New Non-Residential	Total 1970 Non-Residential
Central Urban Core			
Springfield	6,296	404	6,700
Chicopee	5,402	103	5,505
Holyoke	1,810	88	1,898
East Suburban			
Amherst	1,799	107	1,906
E. Longmeadow	592	147	739
Granby	704	7	711
Hadley	446	184	630
Hampden	442	-	442
Longmeadow	458	29	487
Ludlow	2,590	107	2,697
South Hadley	974	22	996
Wilbraham	760	74	834
West Suburban			
Northampton	1,970	59	2,029
Westfield	3,438	169	3,607
Agawam	1,215	66	1,281
Easthampton	541	26	567
Southampton	408	7	415
Southwick	543	7	550
West Springfield	1,714	33	1,747
East Rural			
Belchertown	1,115	26	1,141
Pelham	408	-	408
*Brimfield	48	-	48
*Holland	24	-	24
*Monson	1,129	11	1,140
*Palmer	344	27	371
*Wales	13	-	13
*Ware	154	10	164
West Rural			
Blandford	737	7	744
Chester	375	4	379
Granville	280	-	280
Huntington	313	-	313
Middlefield	161	-	161
Montgomery	157	-	157
Russell	316	-	316
Tolland	100	-	100
Westhampton	270	15	285
*Chesterfield	42	-	42
*Cummington	126	-	126
*Goshen	20	-	20
*Hatfield	117	-	117
*Plainfield	14	-	14
*Williamsburg	45	-	45
*Worthington	27	-	27
TOTALS	38,437	1,739	40,176

\*13 town area.



constructed in Amherst at this time. Westfield State College, in Westfield, was also enlarged during the period under study.

Industrial development also accounted for significant acreage increases during the studied period. Most notable in this category is probably the development of the large industrial park in northeastern Springfield. A smaller industrial park was established in West Springfield near the junction of Interstate Routes 90 and 91. Industrial areas in northern Westfield were also enlarged. Scattered industrial and commercial development occurred to a significant degree in Agawam, Northampton, and Easthampton.

Large shopping center development occurred in Springfield, Chicopee, and Holyoke. Smaller, scattered commercial development occurred principally in the central cities and the suburban municipalities.

The areas taken by the development of Interstate Routes 91 and 291, by the Route 116 by-pass in Amherst, and by the runway extension of Barnes Airport in Westfield, though shown on the map, were not included in the acreage calculations for Table 1.

### Residential

Residential land is shown on the map of regional development as a fifty percent screened color. The screened blue represents residential land use in 1965 in the 30 town area and in 1969 in the 13 town area. The screened red indicates residential land use established since these times up to

October of 1970.

Table 2 presents acreages of residential land use at the time of the original surveys and as of 1970. As seen on this table, residential land use is centered about the central urban municipalities of Springfield, Chicopee, and Holyoke. Nevertheless, major acreage increases occurred in the surrounding suburban areas. The satellite cities of Northampton and Westfield were included in this suburban residential growth.

The greatest amount of residential growth, in acreage and percentage terms, occurred in Amherst. Most of this was related to the University of Massachusetts' expansion. Some new residential development also resulted from the establishment of the new Hampshire College.

Other municipalities which experienced large increases in residential land use were Westfield, Agawam, Longmeadow, Springfield, Ludlow, Hampden, and Wilbraham. All of these had more than 200 acres added to that land already in residential use. As can be seen, these municipalities ring the urban core of the region.

Other large increases in residential land use occurred in Northampton, Easthampton, Southampton, Belchertown, South Hadley, and West Springfield. These communities also are close to the urban core. Residential growth in Belchertown was probably related to the University growth in adjacent Amherst.

TABLE 2  
RESIDENTIAL DEVELOPMENT, 1965-1970  
(in acres)

	Old Residential	New Residential	Total 1970 Residential
Central Urban Core			
Springfield	6,860	320	7,180
Chicopee	3,459	135	3,594
Holyoke	1,933	103	2,036
East Suburban			
Amherst	1,506	766	2,272
E. Longmeadow	1,493	86	1,579
Granby	974	123	1,097
Hadley	825	74	899
Hampden	935	252	1,187
Longmeadow	1,771	382	2,153
Ludlow	1,535	274	1,809
South Hadley	1,919	161	2,080
Wilbraham	1,802	232	2,034
West Suburban			
Northampton	2,040	196	2,236
Westfield	2,741	419	3,160
Agawam	2,149	386	2,535
Easthampton	1,158	172	1,330
Southampton	738	157	895
Southwick	958	120	1,078
West Springfield	2,071	158	2,229
East Rural			
Belchertown	1,045	190	1,235
Pelham	218	18	236
*Brimfield	396	28	424
*Holland	387	3	390
*Monson	564	24	588
*Palmer	917	24	941
*Wales	185	1	186
*Ware	663	21	684
West Rural			
Blandford	246	29	275
Chester	318	24	342
Granville	283	15	298
Huntington	490	29	519
Middlefield	111	10	121
Montgomery	203	57	260
Russell	201	10	211
Tolland	161	11	172
Westhampton	296	40	336
*Chesterfield	330	13	343
*Cummington	387	20	407
*Goshen	344	14	358
*Hatfield	477	26	503
*Plainfield	255	22	277
*Williamsburg	414	8	422
*Worthington	340	10	350
TOTALS	46,098	5,163	51,261

\*13 town area.

As seen in Table 2, and as indicated in the Commission's report, Housing Inventory 1972, most of the new housing has been established in the municipalities surrounding the urban core of the region. At the same time, there has been a recent shift in emphasis from single family housing to multi-family housing. Since 1968 multi-family building permits issued have outnumbered single family permits. And most of this multi-family housing appears to have been established in the western suburban area. Table 3 presents data on this phenomenon.

Aerial photo analysis indicated that new, isolated single family housing was fairly well scattered throughout the region. There were, however, many large single family housing subdivisions, particularly in Longmeadow and other parts of the eastern suburban area. While new housing tended to be concentrated around the urban core, a notable exception was the development related to the University of Massachusetts in Amherst. As seen on the map of regional development, much new housing was also established in and near the satellite cities of Northampton and Westfield, and generally along the east-west Route 20 corridor, especially in Ludlow, Palmer, and Ware.

Table 4 presents data on housing unit increases in the various sub-areas of the region. It can be seen by comparison of this data, from the 1960 and 1970 Census of Housing, that most growth has occurred in the suburban sub-areas and in the east rural fringe.



TABLE 3  
SINGLE FAMILY AND MULTI-FAMILY HOUSING,  
1960 AND 1970

	Single Family		Multi-Family	
	1960	1970	1960	1970
Central Urban Core	37,340	38,460	57,744	56,681
East Suburban	19,684	24,703	2,687	6,145
West Suburban	24,433	25,711	10,970	16,939
East Rural	8,360	7,798	2,293	3,941
West Rural	4,901	4,305	706	810
TOTAL LPVRPD	94,718	100,968	74,400	84,517

Source: U.S. Census of Housing 1960, 1970.

TABLE 4  
HOUSING UNIT INCREASES, 1960-1970

	1960	1970	Percent Change 1960-1970
Central Urban Core	95,100	95,182	0.1
East Suburban	22,423	30,933	37.9
West Suburban	35,364	42,757	20.9
East Rural	10,747	12,665	21.0
West Rural	5,578	5,912	5.9
TOTALS LPVRPD	169,212	187,449	10.9

Source: U.S. Census of Housing 1960, 1970.

The central urban core appears to have experienced almost no growth during the decade 1960-1970. Data presented in Table 5, however, indicates an apparent replacement of approximately 10,000 units of housing in the central core. Of the 95,100 housing units existing in 1960, only 84,991 were still intact in 1970. On the other hand, 10,128 were erected during this decade.

Though there appear to have been some demolitions of structures existing prior to 1960 in other parts of the region, new construction more than replaced these. While in the total region some 15,000 housing units appear to have been eliminated, more than twice this amount was erected during this decade. This resulted in a net growth of more than 16,000 housing units in the region between 1960 and 1970.

Of course, the aerial photo analysis did not detect new construction which occupied the site of a formerly existing structure. Much of the area indicated on the land use maps of 1965 and 1969 as developed had, by 1970, actually undergone redevelopment. This review, in not including all redevelopment, does not indicate the extent of construction activity which took place. Rather, it points out only areas of significant change in land use (from residential to non-residential, or vice-versa) or formerly undeveloped areas which have become occupied by structures. It thereby presents a picture of consumption in the region of undeveloped land resources and trends in the growth of urban settlements.

TABLE 5  
HOUSING UNITS, YEAR BUILT, 1960-1970\*

	Before 1960	1960- 1964	1965- 1968	1969- 1970	Total Housing Units
Central Urban Core	84,991	4,761	3,942	1,425	95,119
East Suburban	21,533	4,291	3,943	1,067	30,834
West Suburban	33,109	3,458	4,764	1,376	42,707
East Rural	9,726	929	929	345	11,920
West Rural	4,325	396	320	116	5,157
TOTALS LPVRPD	153,684	13,835	13,898	4,329	185,746

\*Excludes seasonal and migratory housing units.

Source: U.S. Census of Housing, 1970,  
HC(1), and PHC(1)-205.

### Consistency with Plan

Non-residential development.--Industrial, commercial, and institutional development occurring in the region was substantially consistent with the recommendations of the Commission's Preliminary Regional Development Plan. There was virtually no non-residential development in those areas on the regional plan recommended for residential land use other than schools so located to serve the adjacent residential population.

Some industrial and commercial development did occur in areas not so indicated on the plan. Some industrial expansion in Westfield, north of the Barnes Airport was not indicated on the plan. Scattered, small industrial and commercial developments occurred in Agawam, south of Route 57 and in the vicinity of the Bowles Airport. There was little intrusion of non-residential land use into areas indicated on the plan for outdoor recreation.

Most non-residential development was related to the existing road pattern--especially to the Interstate Routes 91 and 291, but also to U.S. Routes 20 and 5. Very little prime agricultural land was converted to non-residential use, the largest areas being the scattered industrial and commercial developments in southwest Agawam and some industrial, commercial, and school developments in the southwestern portion of Northampton.

Residential development.--Considerable residential

development occurred beyond that contemplated in the regional plan. Expansion of the University of Massachusetts and the establishment of Hampshire College generated residential development in areas not so indicated on the plan.

Suburban residential development in areas not designated for such by the regional plan occurred to a great extent in the western part of the region in Westfield, Southwick, and Agawam. In the northwest, Northampton, Easthampton, and Southampton experienced several large residential developments. In the east, Hampden, Wilbraham, Ludlow, and Belcherstown all experienced residential development in areas not so indicated on the plan. Eastward along Route 20, Palmer and Ware also experienced unforeseen residential developments.

The most noticeable divergence from the recommendations of the regional plan was the residential development occurring in southeast Amherst in an area indicated on the regional plan for major industrial development. There was also some residential development in the industrial area located on the plan in Southwick.

A large residential development was also located in southeast Westfield in the Provin Mountain area, in an area recommended for outdoor recreation use. A fair sized residential development was also located in Ludlow, on Fuller Street, intruding into the area indicated for the proposed Ludlow Regional Park. Most of the other outdoor recreation areas were little, if at all, affected by residential development.



Many large new residential developments in Amherst reflected a relationship to the future road pattern proposed on the regional plan. Residential developments in other areas, however, were oriented more to the existing road network. Many new, isolated, single family houses were scattered throughout the region, along existing roads.

Effect on agricultural land.--In general, much residential development in the region indicated an outward expansion of settlement from the existing urban centers. In so doing, much of this residential development occurred in areas indicated on the regional plan as prime agricultural land.

In the northwest: the southwest part of Northampton; the north, west, and south portions of Easthampton; the undeveloped portions of Southampton; and the south and northeast parts of Westhampton all experienced large residential developments in areas designated as prime agricultural land on the regional plan. In the southwest: the southwest part of Westfield, the southwest part of Agawam, and the western half of Southwick experienced residential developments in prime agriculture areas. In the northeast: such residential developments occurred in Amherst outside the existing developed area; in the south and southwest part of Belchertown; in the eastern part of Ludlow; scattered throughout Granby; a little in Hadley; and some in Hatfield. In the southeast: the south and southeast portions of Wilbraham, and the northeast, northwest, and southwest portions of Hampden experienced



such residential development of prime agricultural land. Altogether, more than 1,300 acres of the recent suburban residential growth occurred at the cost of losing prime agricultural land.

### III. CONTINUATION OF DATA UPDATING AND REVIEW

#### Importance to Planning Process

The present review of land use and development in the Lower Pioneer Valley Regional Planning District is an important step in the overall program of planning for the region. The original survey of the 30 town area was made in 1965. Expansion of the region to include all 43 municipalities in the two counties of Hampden and Hampshire was followed by a survey of the 13 additional towns in 1969. From this land use data a "Preliminary Regional Development Plan" for 1990 was prepared. This study pulls together the prior survey data and updates it to 1970, at least in general terms. The map prepared from the updating presents the land use of all 43 municipalities in the region on a single base for the first time. The date of the updated land use data also roughly corresponds to the 1970 census time, giving a common base year for use in future studies.

The present study, however, because it does not go into detail as to various types of residential or non-residential land use, or densities or intensities of development, must be regarded as a presentation principally of the magnitude of land use changes occurring as of 1970. The study also presents a view of the extent and trends in direction of land occupancy and urban expansion and the consistency of these with regional plans. The observations permitted are general, but they are none the less of value.

Land use planning requires information on existing land use and trends in land use changes in the area for which planning is being accomplished. As a continuing process, planning must also be supplied with data on changes occurring, so land use must be monitored by periodic resurveys of the planning area. Recent data is often vital for adequate planning, while the currentness of information always assists timely action.

Land use data should first satisfy a local need, for it is at the municipal level where the most direct control of land use and development occurs. At the same time, planning of land use on the local level must consider development in a regional context. Many times, the important factors affecting land use decisions are regional or broader in scope.

#### Relation to Information Systems

The proper way to regard land use data is as one of many types of data necessary for regional or municipal planning. The proper handling of such data should be part of a general system of information handling for planning. Land use data collection should therefore be integrated into the overall information systems used by the regional or municipal planning agencies.

Land use data is best gathered at the local level, because it is at that level where the most detail can be observed and where more general knowledge is available for use in the data gathering or in the classification and recording of the data collected. At the same time, land use information

can be put to use more immediately and in a more detailed way in the local public administration. For these reasons, primary land use data collection, as a continuing planning task, should be an operational task of the local community's administrative work.

Viewed in a long-term perspective, land use data collection and utilization for planning purposes should be organized as an information handling system where the municipal administrations work with the regional planning agency in the common cause of making such information available to users in a coordinated manner. This means that the regional planning agency must work closely with those involved on the municipal level in the collection and utilization of land use data.

A land use information system should be established as part of the regional information system, and this should also form part of the municipal planning information systems. Such a system should be organized to collect land use data on a continuous basis (utilizing current municipal operations where possible), maintain this data in a quickly retrievable form, and present the data to users in various ways. On a long term basis, land use data collection and development review should be part of a continual task of regional plan review and updating to meet the needs of the region and the municipalities which comprise it.



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Chester	July 1971
East Longmeadow	December 1970
Goshen	April 1969
Longmeadow	January 1971
Northampton	April 1969
Palmer	December 1969
Pelham	May 1970
Russell	February 1970
Southampton	May 1971
South Hadley	November 1972
Springfield	May 1970
Ware	April 1969
Westfield	June 1970
Wilbraham	May 1970
Williamsburg	March 1970
Worthington	February 1969



Street Directories:

Arrow Street Guide. New Haven, CT

Springfield, West Springfield, Longmeadow, and  
Chicopee

Agawam

Amherst, Hadley, and Hatfield

Chicopee, Chicopee Falls, Willimansett, Aldenville,  
and Fairview

East Longmeadow

Hampden

Holyoke and South Hadley

Longmeadow

Ludlow

Northampton and Easthampton

Springfield

West Springfield

Westfield

Wilbraham

